

(c) providing a plurality of product processing records, wherein each of the records associates a given set of product processing data with a corresponding product processing feature range set;

(d) determining the suitability of the sample obtained in step (a) for processing into the uniform quality end product by comparing the at least one structural or functional index to product processing feature range sets in the records; and

(e) if the at least one structural or functional index matches one of the product processing feature range sets in the records then, selecting the raw product so that when processed under the given set of product processing data, the selected raw product results in the uniform quality end product.

REMARKS

Entry of this Amendment and reconsideration of the subject application in view thereof are respectfully requested.

I. Status of Claims

Claims 1-9 were pending and these claims are rejected. Claim 1 has been amended to clarify the method steps. Support for the amendment can be found in the specification at, for example, page 28, lines 19-26 and in Figure 6. No new matter is added by these claim amendments.

II. Drawings

On page 2 of the Office Action, the Examiner noted that the Applicant is required to submit drawing corrections within the time period set for responding to this Office Action. 37 Pursuant to 37 CFR §1.85. Applicant submitted formal drawings as a separate paper with a transmittal letter addressed to the Official Draftsperson on July 2, 2002. A copy of the drawings and the transmittal letter filed on July 2, 2002 is enclosed herewith.

III. Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-9 were rejected under 35 USC 112, second paragraph as indefinite. Specifically, the Examiner has asserted that the connection between steps (c) and (e) of claim 1 is

unclear as to whether step (e) requires any parameter from step (c) or not. Applicant amended claim 1 to clarify steps (c) and (e). Applicant believes that the entry of the amendment should overcome this rejection. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, are respectfully requested.

IV. Rejections Under 35 U.S.C. § 102

Claims 1-3 and 5-9 were rejected under 35 U.S.C. §102 as being anticipated by Chtioui et al., J. Sci. Food Agric, 1998, 76:77-86 ("Chtioui").

The Examiner requested that the Applicant submit the date of publication for this reference in order to resolve the rejection as §102(a) or §102(b) rejection. Applicant's inquiry as to the date of publication reveals that the article appeared in issue number 1 of Jan 1998.

Applicant respectfully traverses this rejection.

A. Chitoui teachings

The Chtioui reference teaches methods for the discrimination of seeds according to their species by employing Genetic algorithms (GAs). GAs are computational models of evolution and they derive their name from the fact they try to mimic the natural evolution of living organism. In Chtioui, Genetic algorithms (GAs) were combined with the nearest neighbor method for the discrimination (or classification) of seeds by artificial vision. GA was applied to select the more relevant features among an initial set of large number of features. The classification performances were tested on a practical problem, which consisted on the discrimination between four seed species. The reference also reports misclassification of the seed species by applying the disclosed method. For example, 6.25% of the seeds were misclassified at generation 140 and 3% of the seeds were misclassified at generation 400.

B. Law of Anticipation

"To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter." *PPG Industries Inc. v. Guardian Industries Corp.*, 37 USPQ2d 1618, 1624 (Fed. Cir. 1996). There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of

ordinary skill in the field of the invention. *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 18 USPQ2d 1896 (Fed. Cir. 1991). In the context of method claims, anticipation requires identity of the claimed process and process of the prior art; the claimed method, including each step thereof, must have been expressly described or embodied in an anticipatory reference. *Glaverbel Societe Anonyme v. Northlake Marketing & Supply, Inc.*, 33 USPQ2d 1496 (Fed. Cir. 1995). Any feature not directly taught must be inherent or otherwise implicit in the anticipatory reference. *Standard Havens Prods., Inc. v. Gencor Indus., Inc.*, 21 USPQ2d 1321, 1328 (Fed. Cir. 1991). Under the inherency doctrine, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates. *In re King*, 231 USPQ. 136, 138 (Fed. Cir. 1986).

C. Claims 1-3 and 5-9, and Chtioui teachings

The Chtioui reference fails as an anticipatory reference because it does not teach a method for non-random selection of a raw product of a selected plant for processing into a uniform quality end product. The examiner points to page 85, first column, lines 9 and 10 of the Chtioui reference and avers that “[s]uch individuals are reasonably interpreted as ... [having] the uniform characteristic as being best for reproduction” and seems to infer that this language discloses a method for non-random selection of a raw product of a selected plant for processing into a uniform quality end product. Applicant disagrees and submits that the Examiner’s interpretation is not only out of context but is contrary to the explicit teachings of the cited reference. It is out of context because the cited language relates to selection step of the evolution process. The present method is not about simulating the evolution process. Further, it is known to one skilled in the art of evolution that diversity, not the uniformity, is desired in the end product. Indeed, the Chtioui method is designed to keep diversity not uniformity in a given product of a selected plant. For example, at page 78, column 1, first full paragraph, the reference teaches that

GA is a population-based algorithm.... GA operates in three stages: *selection, crossover and mutation*... It acts in order to keep some diversity in the currently tested solutions....

At page 78, column 1, first full paragraph, the reference teaches that:

... seeds belonging to the same species often present wide variations in their morphological characteristics.

At page 79, column 2, the last 3 lines of the text under “# 6”, the reference teaches that:

“The random perturbation of a chromosome [i.e., a seed in a seed population] may be of great importance when there is a lack of diversity in the population.”

At page 82, column 1, second full paragraph, last four lines, the reference teaches that:

The width of wild oat seeds varied from 17 pixels to 45 pixels. In spite of the heterogeneity of width, this feature allowed the discrimination of wild oat seeds from the three other seed species.

Thus, the end product of a selected plant, i.e., the seeds of wild oat, are heterogeneous not uniform at the end of the method. Accordingly, the Chtioui teachings do not pertain or are directly contrary to the instant invention. Notwithstanding, Applicant submits that the Chtioui reference does not teach or disclose the each step of the claim 1 as discussed below.

The examiner avers that “Sample collection” on page 80, describes the instant step (a). Applicant disagrees. The step (a) requires a sample of the raw product of a selected plant whereas a sample of the raw product in Chtioui are not of a selected plant but of four species; red fescue, perennial rye grass, rumex and wild oat. The method was applied to discriminate between four seed species in the starting sample. If the sample of Chtioui were to be seeds of only a selected plant (e.g., wild oat) there would be no need for applying the methods therein because there would be nothing to classify. Therefore, in contrary to the Examiner's assertion, Chtioui does not teach or disclose step (a) of the instant claims.

The examiner avers that pages 82-86 describe the instant step (c). Applicant disagrees. First, the step (c) of claim 1 requires a plurality of product processing records wherein each of the records associates a given set of product processing data with a corresponding product processing feature range set. An example of a plurality of product processing records is set forth in Figure 6. The Examiner has not pointed to any specific text where Chtioui teaches such records with plurality of product processing feature range sets and plurality of product processing data sets. Further, the Examiner has not pointed to specific language in Chtioui teaching, either expressly or inherently, about the application of the given set of product processing data to raw product

falling within the associated product processing feature range set so that a uniform quality end product results. Therefore, in contrary to the Examiner's assertion, Chtioui does not teach or disclose step (c) of the instant claim.

As to step (d), the Examiner avers that [t]hese features are then determined in order to determine the suitability of each seed regarding its seed type as also required as a determination in instant step (d) of claim 1.” Applicant disagrees with this assertion. The step (d) requires “determining the suitability of the sample obtained in step (a)” As already discussed, Chtioui does not teach or disclose step (a) and, therefore, does not teach the determining step (d).

As to step (e), the Examiner avers that [t]he seeds are then selected as to seed type if the characteristics match as also required in instant claim 1, step (e). Applicant disagrees with this assertion. The step (e) requires, among other things, that the selected raw product must result in the uniform quality end product. As already discussed, Chtioui does not teach or disclose a sample of the raw product of a selected plant but of four plants and the end product is not of uniform quality. Accordingly, Chtioui does not teach or disclose a method set forth in claim 1.

Chtioui also fails to anticipate the dependent claims 2-3 and 5-9 for reasons, among other things, that these claims incorporate all of the limitations of claim 1.

The law of anticipation requires identity of the claimed invention and the prior art teachings. Further, Applicant respectfully submits that the anticipation cannot be based upon speculation or probability but must be based on certainty. As discussed above, Chtioui is not pertinent and fails as anticipatory reference. To the extent that the Examiner maintains that the Chtioui reference anticipates the rejected claims, it is the Examiner's burden to show how the cited language or any other teaching in the Chtioui reference unequivocally anticipates each and every element of these steps. If not, the Examiner must withdraw the rejection based on Chtioui reference.

Accordingly, in view of the foregoing remarks, reconsideration and withdrawal of the rejections under 35 U.S.C. §102 are respectfully requested.

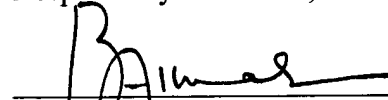
Serial No.: 09/521,769
Group Art Unit: 1631

V. Conclusion

Applicant believes this response to be a full and complete response to the Office Action. Thus, favorable reconsideration in view of this response and allowance of all of the pending claims are earnestly solicited.

July 9, 2002

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Marked Up Version of Claims in Serial No. 09/521,769

1. (Amended) A method for non-random selection of a raw product of a selected plant for processing into a uniform quality end product comprising the steps of:

(a) obtaining a sample of the raw product of the selected plant;
(b) analyzing the sample to determine at least one structural or functional index associated with the raw product;

(c) providing a plurality of product processing [feature range set] records, wherein each of the records associates a given set of product processing data with a corresponding product processing feature range set[, and wherein, for each such record, a uniform quality end product results from application of the given set of product processing data to raw product falling within the associated product processing feature range set];

(d) determining the suitability of the sample obtained in step (a) for processing into the uniform quality end product by comparing the at least one structural or functional index to product processing feature range sets in the records; and

(e) if the at least one structural or functional index matches one of the product processing feature range sets in the records then, selecting the raw product so that when processed under [a] the given set of product processing [parameters] data, the selected raw product results in the uniform quality end product.



APPENDIX: Copy of Pending Claims in Serial No. 09/521,769 as of July 9, 2002

1. (Amended) A method for non-random selection of a raw product of a selected plant for processing into a uniform quality end product comprising the steps of:
 - (a) obtaining a sample of the raw product of the selected plant;
 - (b) analyzing the sample to determine at least one structural or functional index associated with the raw product;
 - (c) providing a plurality of product processing [feature range set] records, wherein each of the records associates a given set of product processing data with a corresponding product processing feature range set[, and wherein, for each such record, a uniform quality end product results from application of the given set of product processing data to raw product falling within the associated product processing feature range set];
 - (d) determining the suitability of the sample obtained in step (a) for processing into the uniform quality end product by comparing the at least one structural or functional index to product processing feature range sets in the records; and
 - (e) if the at least one structural or functional index matches one of the product processing feature range sets in the records then, selecting the raw product so that when processed under [a] the given set of product processing [parameters] data, the selected raw product results in the uniform quality end product.
2. The method of claim 1, wherein the selected plant product is a group fruits, a group of tubers, a group of seeds, a group of leaves, a group of vegetative buds, a group of inflorescences, a group of nuts or a group of seeds of the crop plant.
3. The method of claim 1, wherein analyzing the sample is by means of an imaging system.
4. The method of claim 3, wherein the imaging system is a light microscope, fluorescent microscope, spectral microscope, hyper-spectral microscope, electron microscope,

confocal microscope optical coherence tomograph telescope or spectral telescope, MRI or ultrasound.

5. The method of claim 1, wherein the at least one structural or functional index is a plant phenomics index.

6. The method of claim 5, wherein the plant phenomics is macrophenomics or microphenomics.

7. The method of claim 1, wherein the at least one structural or functional index includes a qualitative feature.

8. The method of claim 1, wherein the at least one structural or functional index includes a quantitative feature.

9. The method of claim 1, wherein said processing data include bioprocessing data.